



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,201	08/17/2001	Jennifer Ambrose	M8540/250222	4944

23370 7590 11/10/2004

JOHN S. PRATT, ESQ  
KILPATRICK STOCKTON, LLP  
1100 PEACHTREE STREET  
ATLANTA, GA 30309

EXAMINER
----------

TAMAI, KARL I

ART UNIT	PAPER NUMBER
----------	--------------

2834

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/932,201	AMBROSE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tamai IE Karl	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 29 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,8,10,12,13,17,19-21,30,31 and 35-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 39 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,8,10,12,13,17,19-21,30,31,35-38 and 40-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/24/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the mechanical interlocking features must be shown or the features canceled from the claims.

No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The rejection of Claims 1, 2, 4, 5, 8, 10, 12, 13, 17, 19-21, 30, 31, and 35-39 under 35 U.S.C. 112, first paragraph, of the prior office action is withdrawn.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 43 and 44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims 43 and 44 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification does not support mechanical interlocking at the interface of the magnet and commutator core, or the mechanical interlock effected by the interlocking features. Particularly, the specification states the goal of obviating the need for additional retention methods (page 3, lines 17-19).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 44 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 44 is vague and indefinite because it is unclear constitutes the interlocking features.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 2, 4, 5, 10, 12, 13, 19, 21, 30, 31, 35, 36, 37, and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. (Furuya)(JP 08-223889) and Kawashima (US 4678616). Furuya teaches a commutator with a permanent magnet chemically bonded (integrally formed) with the barrel commutator core (Figure 5c) supporting copper commutator segments. Furuya inherently has molecular/chemical bonds which interbond the core portion to the magnet portion and that the atoms interlock with adjacent atoms to interlock the core and magnet portions of the commutator. Furuya teaches every aspect of the invention except the magnet being

a magnetic powder in a thermosetting resin, including the commutator and magnet integrally formed (translation page 9, paragraph 0029). Kawashima teaches magnets made from a thermosetting powder resin magnets with strontium or barium ferrite magnets are commonly used in magnetic devices. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the commutator of Furuya with the commutator being made of a thermosetting resin with a magnetic powder because Kageyama teaches that such magnets are reliable and resist chipping, and because Furuya teaches the magnet and commutator are integrally constructed from the same material, and because selection of the material based on intended use is within the ordinary skill of the art (See *In re Leshin*, 125 USPQ 416).

In regards to claims 41, the method of making limitation of concurrent molding is not germane to the patentability of the commutator apparatus, such that it does not receive patentable weight in regards to the commutator apparatus. Additionally, Furuya shows the commutator 5c being a single piece which suggests the mold be one step to save manufacturing time.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. (Furuya)(JP 08-223889) and Kawashima (US 4,678,616), in further view of Kageyama et al. (Kageyama)(US 6,369,484). Furuya and Kawashima teach every aspect of the invention except the anchors on the commutator segments. Kageyama teaches anchors on the bottom of the commutator segments to hold the insulating commutator. It would have been obvious to a person of ordinary skill in the art at the

time of the invention to construct the commutator of Furuya and Kawashima with the anchors of Kageyama to hold the conductor segments to the commutator core.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. (Furuya)(JP 08-223889) and Kawashima (US 4,678,616), in further view of Marsal (US 2,645,732). Furuya and Kawashima teach every aspect of the invention except the conductive commutator shell being carboneous. Marsal teaches the commutator are carbon because carbon forms a strong bond with the resin when heated (col. 2, line 4). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the commutator of Furuya and Kawashima with the commutator being carboneous to provide a strong connection with the resin core, as taught by Marsal.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. (Furuya)(JP 08-223889) and Kawashima (US 4,678,616), in further view of Adler (US 5,850,141). Furuya and Kawashima teach every aspect of the invention except the sensor being a variable reluctance sensor. Adler teaches the equivalence of the hall sensor and the variable reluctance sensor for determining rotor speed. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the commutator of Furuya and Kawashima with the sensor being a variable reluctance sensor to determine the rotor speed with a passive sensor, and because it is within the ordinary skill in the art to choose between known equivalents.

13. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. (Furuya)(JP 08-223889) and Kawashima (US 4,678,616), in further view of Uchiyama (JP 11-252,866). Furuya and Kawashima teach every aspect of the invention except the magnet being mounted to the face of the commutator. Uchiyama teaches an annular magnet mounted to the face of the commutator. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the commutator of Furuya and Kawashima with the magnet mounted to the face of the commutator as in Uchiyama to provide a small thickness in the motor.

14. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. (Furuya)(JP 08-223889) and Kawashima (US 4,678,616), in further view of Hancock (US 3983431). Furuya and Kawashima teach every aspect of the invention except the resin include phenolic material. Hancock teaches that phenolic thermosetting resins are preferred for commutator cores for economic reasons. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the commutator of Furuya and Kawashima with the thermosetting resin including a phenolic material for economic reasons.

***Allowable Subject Matter***

15. Claim 39 is allowed.



### ***Response to Arguments***

16. Applicant's arguments filed 10/24/2003 have been fully considered but they are moot in view of the new ground of rejection. The Applicant's argument that Furuya and Kawashima do not teach perform mixtures of magnetic powder and thermoset binder is not persuasive because Kawashima teaches that magnetic devices are made with permanent magnets of magnetic powder and thermoset binder. Applicant's argument that prior art does not teach a resin commutator core is not persuasive because Furuya teaches the commutator and magnet made from the same material, and Kawashima teaches that the material should be thermoset resin with a magnetic powder so that the magnet is resistant to chipping. Applicant's argument that the prior art does not teach inter-bonding of the magnet and commutator core is not persuasive because the integrally formed magnet/core of Furuya inherently has inter-bonding of the magnet and core of the commutator.

### ***Conclusion***

17. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2834


mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai  
PRIMARY PATENT EXAMINER  
November 5, 2004



KARL TAMAI  
PRIMARY EXAMINER